



TANK TYPE	MOUNT	LOCATION	PMD
PMD Carbon Overwrapped	Sidemounts Polar Boss	Pressurant Hemisphere	Simple Vane

The tank is a 35.5" x 100.6" long, carbon overwrapped titanium tank with a polar mounted vane propellant management device. The liner is constructed of solution treated and aged, 6Al-4V titanium machined hemisphere forgings, welded to 0.032" thick 6Al-4V titanium, rolled and welded sheet stock cylinder. Mounting is provided by four bonded sidemounts and a polar boss attachment on the pressurant hemisphere. The tank contains an internal PMD (propellant management device) assembly, constructed from titanium sheet and titanium woven screen. The PMD serves to maintain separation of liquid propellant and gaseous pressurant, and to provide predictable gas-free liquid propellant expulsion from the tank under low or zero gravity conditions. The propellant and pressurant ports are 3/8" titanium tubes. The 80443-101 part number designates the deletion of vibration testing from the test program. The test program includes a load test in place of the vibration test.

**ATK Part Number 80443-1**

**SIZE: 35.5" DIA X 100.6" LONG**

**SIZE: 901 mm DIA X 2,553.2 mm**

**ISO 9001 & AS 9100 REGISTERED**

**APPLICABLE DOCUMENTS**

Acceptance Test Procedure	50-000595
Qualification by Similarity	56-000195
Protoflight Test Procedure	50-000600
Bubble Point Test Procedure	50-000486
Cleaning	CPP 3815

**TANK CHARACTERISTICS**

Operating Pressure, psig	285	Total Volume, in <sup>3</sup>	86,050
Proof Pressure, psig	375	Max Design Wt, lbs	110.90
Cryo Proof, psig	N/A	Minimum Wall, inch	0.030
Burst Pressure, psig	450		
Actual Burst, psig			

**ACCEPTANCE TESTS**

- Examination of Product
- Vol. Determination and Proof Pressure Test
- Pressure Drop Test
- Vibration Test
- Tank Assembly Bubble Point Test \*
- External Leakage \*
- Examination of Product
- Cleanliness
- Data Review

**Notes:**

- 1: Tooling belongs to ATK
- 2: Only the cylinder section is wrapped
- 3: This is the 80350 female die with a new punch
- 4: Tank is similar to 80391

**TANK CHARACTERISTICS (Metrics)**

Operating Pressure, bar	19.65	Total Volume, l	1,410
Proof Pressure, bar	25.85	Max Design Wt, kg	50.30
Cryo Proof, bar	N/A	Minimum Wall, MM	0.762
Burst Pressure, bar	31.03		
Actual Burst, bar			

**QUALIFICATION TESTS**

- Examination of Product
- Volume Determination and Proof Pressure Test
- Proof & MEOP Pressure Cycle Life
- Pressure Drop & Expulsion Efficiency Test
- Radiographic Inspection
- Vibration Test
- Slosh Test
- Tank Assembly Bubble Point Test
- External Leakage
- Burst Pressure
- Data Review

**HEMISPHERE FORGINGS**

HEMI P/N	QTY	SUPPLIER	Die No
80-391061-1	2		

**ROLLED AND SEAM WELDED CYLINDER**

P/N	QTY	SIZE
80-391100-3	2	.032" THICK x 35.245 id x 48.0" Long

**TUBE TYPE AND SIZE (in.)**

Ti 3AL-2.5V	SIZE
80-391011-5	.375 OD X .025 Wall
Gas	

**TUBE TYPE AND SIZE**

80-391007-5	.375 OD X .025 Wall
Prop	

